Michigan Association of Blood Banks presents

Summer 2007

In A Different Vein

Michigan Association of Blood Banks, c/o Lisa Tyzo, 29832 Buckingham, Livonia MI 48154
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PRESIDENT'S MESSAGE

By Suzan Bowers, MT(ASCP)SBB

The MABB 53rd Annual Meeting will be held on September 19th and 20th at Schoolcraft College VisTaTech Center in Livonia and my question for you is, "Will YOU Be There?" I sincerely hope so. This event is the main event of our organization and the agenda is once again impressive. Gail Coghlan from the University of Manitoba in Winnepeg Canada is our Kay Beattie Lecturer. The rest of the speakers are equally impressive and promise an informative and lively educational experience. The agenda also includes a Memorial to Kay Beattie. Kay was a nationally recognized serologist that the MABB had been privileged to call a member. Her passing this year was a loss and we will fondly remember her at our meeting.

Inside This Issue

When you look at the cost of our seminar compared to other educational opportunities available, I'm sure you will agree that we are a great value. The MABB works hard to keep our costs low so that we can continue to provide you a great seminar at a great value. Last year attendance was up and it is my hope to continue that trend this year. New last year was our offering of P.A.C.E. credits for the technical attendees in addition to the CME credits for the physicians and we are again offering that service. We are excited to be back at Schoolcraft. This facility provides such a pleasant setting and the food is always good. All in all it looks to be a rich educational experience and I hope that your answer to the question, "Will YOU Be There?" is "I wouldn't miss it for the world".

On a similar note, the Education Committee is hard at work planning the next RAP sessions. The spring RAP, "Are You Prepared? Unannounced Inspections" proved a big success and the committee is planning on presenting the same topic in Grand Rapids this October. We were so pleased with the turnout last year in Grand Rapids and hope to get that level of participation again this year. Another RAP in the works is planned for November at Southeastern Michigan American Red Cross. This will be a joint RAP by the MABB and ARC on the final stages of preparation for ISBT (yes, it really is going to happen). And finally, the committee is planning on returning to Gaylord again for an "up north" RAP. Last year's was well attended and we look forward to going back. As long as we get the support for the RAP by good attendance, we will continue to provide them.

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On a final note, please consider volunteering for one of the MABB committees. There will be a sign up sheet at the Annual Meeting and at all the rest of the RAPs. If you are interested but can't make it to one of our meetings to sign up, just give me a call at 313-465-8516. We need new blood to ensure that we remain successful well into the future. I recently had the opportunity to go through the MABB archived records and I was amazed at the rich history of this organization. We go back over 50 years and have past members that were pioneers in transfusion medicine. We can't let that tradition slip away because of busy schedules and other commitments. Instead, become a part of that tradition by becoming an active member. That is the only way we can ensure this organization's future. It's all in your hands.

HOLD THE DATE

53rd MABB Annual Meeting: September 19 - 20, 2007

53rd ANNUAL MEETING UPDATE

By Laura Cooling MD

The 53rd Annual Meeting of the Michigan Association of Blood Banks will be held September 19th and 20th at Schoolcraft College VisTaTech Center, Livonia. Registration will open at 8:00 am with opening remarks and presentations beginning at 9:40. The meeting will again offer both physician and P.A.C.E. continuing education credits for attendees. Among our speakers this year will be:

Gail Coghlan, Research Associate at the RH Laboratory, Winnipeg, Canada and this year's recipient of the Kay Beattie Memorial Award. Gail has published extensively on several low and high frequency antigens, including antigens belonging to Rh, Diego and MNS systems. In addition to the Kay Beattie lecture, Ms. Cochlan will be speaking on her work with chromosomal linkage analysis to identify the molecular basis of several human diseases. Among her work is the mapping of the locus for muscular dystrophy and the Bowen-Conradi syndrome among Canadian Hutterites and early seminal work with Theresa Zellinski in the chromosomal assignment of several blood group antigens.

Jack Hager, Director of Testing, American Red Cross-NTL, Portland, Oregon. Mr. Hager is a military trained blood bank specialist and just recently returned from Iraq where he operated one of two apheresis collection services in support of Operation Iraqi Freedom. He will be speaking Thursday, September 20th on the topic "*Providing Blood Products for Trauma Patients in Remote and Combat Environments*". President Sue Bowers has heard Jack speak and promises a terrific talk for our members.

Dr. Duane Newton, Director of Microbiology, University of Michigan. On Wednesday morning, Dr. Newton will be speaking on "*Blood Donor Screening for Chagas Disease*". His lecture will include the biology and clinical presentation of Chagas disease, as well as the issues related to testing donors for Chagas disease.

Amy Dixon, Beaumont University, will return this year for another management and motivational talk on Wednesday September 19th. This year she will be speaking on "*Attitude Angle*" per popular request; her talk will follow lunch and the MABB business meeting.

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W. John Judd, a perennial MABB favorite and Professor of Immunohematology, University of Michigan. John will be speaking on "*The Top Ten Mistakes in Antibody Identification*"--a topic that is sure to be humorous and informative. **Michelle Tuson,** assisted by **Sharon Cisco,** will warm-up the audience prior to John's talk with a round of *Blood Bank Jeopardy*. Please join us Thursday for a fun and entertaining afternoon.

Louann Dake, Immunohematology Reference Laboratory, University of Michigan. Louann will be speaking on "*Blood Group Antigen Typing by Molecular Methods*". The talk will discuss both the implementation and clinical applications of molecular RBC antigen genotyping using the new HEA™ bead technology in clinical transfusion services.

Dr. LeeAnn Weitekamp, Medical Director, Michigan Community Blood Center. On Thursday, Dr. Weitekamp will be speaking on the "*Impact of TRALI Reduction Strategies*". She will speak on the various methods to limit potential high-risk donors, including actively screening female donors for HLA antibodies, and the impact on blood collections and supply.

Dr. Laura Cooling, Associate Medical Director Transfusion Medicine, University of Michigan. Dr. Cooling will be speaking on *Transfusion Reactions^2: Complications and Toxicity of Stem Cell Infusions*.

Finally, no meeting of the MABB could be complete without case studies. Three serologic cases will be presented by **Pam Cornwall**-University of Michigan, **Andrea Davis**-St. Joe's Ann Arbor, and **Dorothy Diefenbach,** Ingham Region Medical Center. Clinical case studies will be presented **Dr. Barbara O'Malley,** Beaumont Hospital and **Drs. Jason Carvahlo** and **Dr. Malti Kshirsagar** from the University of Michigan on Thursday morning.

Visit the MABB Web site for the Annual Meeting Registration Brochure. Registration deadline is September 5th, so send in your registration *today!*

Will YOU be there?

www.mabb.org

Annual Meeting Sponsors:

American Red Cross ♦ Baxter ♦ Gambro ♦ Immucor Gamma ♦ Michigan Community Blood Center (MCBC) ♦ Novo Nordisk ♦ Ortho-Clinical Diagnostics ♦ Terumo Medical

Schedule for the MABB Annual Meeting, September 19-20, 2007

Wednesday, September 19th

Moderator: Jan Hamilton

8:00 Registration and Continental Breakfast

8:40 Introduction: Suzan Bowers, MABB President

8:50 Blood Donor Screening for Chagas Disease
Duane Newton, PhD

9:40 Blood Group Antigen Testing by Molecular Methods
LouAnn Dake, MT(ASCP)SBB

10:30 **EXHIBITS**

11:00 A Memorial to Kay Beattie
Janis Hamilton, MT(ASCP)SBB

11:10 2007 Kay Beattie Lecture:
Why Bother with Lows?
Gail Coghlan, BSc, RT
(courtesy Michigan Community Blood Centers)

12:00 **LUNCH AND EXHIBITS**

Moderator: Terry Downs

1:15 MABB BUSINESS MEETING
President, Suzan Bowers

1:45 Attitude Angle
Amy Dixon, BA, MSBA

2:45 **EXHIBIT & REFRESHMENTS**

3:15 Gene Mapping and Family Studies
Gail Coghlan, BSc, RT

4:10 Serologic Case Studies
Moderator, LouAnn Dake
"Warm Autoantibody with Rh Specificity"
Pam Cornwell, MT(ASCP)
"Allergic Transfusion Reaction"
Andrea Davis, MT(ASCP)
"Maternal anti-Diego as a Cause of Positive DAT in Cord Blood"
Dorothy Diefenbach, MT(ASCP)SBB

5:00 **Adjourn**

Thursday, September 20th

Moderator: Sherwin Imlay

8:00 Registration and Continental Breakfast

8:40 Introduction: Suzan Bowers, MABB President

8:50 Transfusion Reactions[2]: Complications and Toxicity of Human Progenitor Cell (HPC) Infusions.
Laura Cooling, MD, MS

9:40 Providing Blood Products for Trauma Patients in Remote/Combat Environments.
Lt. Col Jack Hager, MT(ASCP)SBB

10:30 **EXHIBITS**

11:10 Clinical Cases
Moderator, Sherwin Imlay
"A Man Presenting With GI Pain"
Barbara O'Malley, MD
"We Are Pretty Sure She Has TTP"
Jason Carvalho, MD
"Argatrobanned"
Malti Kshirsagar, MD

12:00 **LUNCH AND EXHIBITS**

Moderator: Sharon Cisco

1:15 Blood Bank Jeopardy
Michelle Tuson, MT(ASCP)SBB

1:45 Top 10 Mistakes in Antibody Identification
W. John Judd, FIBMS, MIBiol

2:45 **EXHIBIT & REFRESHMENTS**

3:15 Impact of TRALI Reduction Strategies
LeeAnn Weitekamp, MD

4:10 **Adjourn**

REMEMBERING DR. MUELLER

Former MABB President, Dr. Willys F. Mueller dies

Dr. Willys F. Mueller, 72, died May 21, 2007 at a hospital in Safety Harbor, Florida. He had been diagnosed with a lung ailment approximately 3 months earlier.

Dr. Mueller served as MABB President from 1991-1992.

He was the chief pathologist at Hurley Medical Center in Flint from 1981-1997 and the American Red Cross Wolverine/Great Lakes Region Medical Director in Flint from 1981-1995. Forensic pathology and blood bank were his specialties.

Dr. Mueller was originally from Detroit and graduated from U of M Medical School. He moved to Flint in 1964 and is credited with helping to establish the medical examiner system in Genesee County.

He was a very gracious and kind man, always willing to help others. He especially enjoyed editing and proofreading articles.

Dr. Mueller, a passionate U of M football fan and avid golfer, moved to Florida approximately 10 years ago after he retired from Hurley Medical Center.

By Douglas D. Congdon, DO

Dr. Willys F. Mueller, Jr, of Tarpon Springs, Florida, formerly of Fenton, Michigan, age 72, died Monday, May 21, 2007, at a Safety Harbor, Florida Hospital.

He was born in 1934 in Detroit, Michigan, attended undergraduate and then medical school at the University of Michigan, Ann Arbor, performed his internship and part of his pathology residency at Providence Hospital, and completed his pathology residence at Wayne County General Hospital. He then came to Flint as an Associate Pathologist at Hurley Hospital, but after two years he was called to duty and served as a Captain in the United States Army, Medical Corps.

After two years at the A.F.I.P., Dr. Mueller returned to Flint to continue his career. He was the physician credited with helping to introduce the Medical Examiner system in Genesee County in the 1960's, and he was an early advocate for HIV-AIDS education in Genesee county. In addition to being director of laboratories at Hurley Medical Center, he was also the Medical Director of the American Red Cross, Wolverine Blood Region, Genesee County Chief Deputy Medical Examiner, Director of the School of Medical Technology, and the School of Histologic Technique, as well as the Director of the Transitional year program and Director of the Pathology Residence at Hurley.

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Dr. Mueller also served as the Editor of the Genesee County Medical Society Bulletin and was past president of the Michigan Society of Pathologists, Michigan Association of Blood Banks, as well as the Genesee County Medical Society.

As is evident, Dr. Mueller was a major leader in the medical community. He always had a smile, and was known as a kind and compassionate physician who really cared for his family, colleagues, and patients.

WILL YOU MEET THE CONTINUING EDUCATION CHALLENGE?

By Mary DePouw

In my search for an interesting article of a serological nature, I noticed the name of a friend and colleague from my beginnings as a blood banker. Joanne Kosanke was one of my first students in our Med Tech program. Although I take no credit for her enthusiasm and success in Immunohematology, I did feel a swell of pride to see that she is the manager of the Reference Lab of the Central Ohio Region of the American Red Cross.

Following our e mails to re-acquaint, she agreed to submit a continuing education article on HTLA Antibodies for our MABB Newsletter. It seems to be the practice in Ohio to submit a continuing education article for every issue of their newsletter. **Now, are we going to let Ohio beat us in this best practice? I challenge every member of MABB to submit one article which can be used for continuing education.** The topic may be serological, scientific, technical, managerial, or humoral. *(Humoral adj. [Mod.L. (Paraclesus) humoralis < L. humor] of or relating to the humors of the body)*

Submissions will be voted on by the MABB board for efficacy, originality, and interest. **A favorable prize will be awarded to the top three submissions.**

If you need suggestions or help with objectives and questions, contact Mary DePouw. Submit your articles to mdepouw@crittenton.com.

HTLA ANTIBODIES – A CONTINUING EDUCATION ARTICLE

By Joanne Kosanke, MT(ASCP)SBB
Reference Lab Manager, American Red Cross Blood Services, Central Ohio Region, Columbus, Ohio

After reading this Continuing Education article, the participant shall be able to

- State the serologic characteristics of antibodies with high-titer, low-avidity reactivity
- State the antibodies that can be neutralized with pooled plasma.
- Differentiate antibody specificities by using enzyme-treated and DTT-treated test cells.
- Identify structures where selected blood group system antigens reside
- Associate ethnic backgrounds with particular antigen-negative phenotypes

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HTLA Antibodies

That's a bad title, because there is no antigen named high-titer, low-avidity (HTLA), and therefore no HTLA antibodies! More correctly, the title of this CE activity should be *Antibodies with High-Titer, Low-Avidity (HTLA) Reactivity.*

There are three blood group systems and a blood group collection that are associated with antibodies with HTLA reactivity. The names and ISBT symbols (in parentheses) of the blood group systems are Chido/Rodgers (CH/RG), Knops (KN), and JMH (JMH). The blood group collection is Cost (COST).

When performing tube testing, typical HTLA reactivity gives weak reactions, usually less than 1+, with almost all panel cells. If the serum is titrated and each dilution tested with one or two test cells, the weak reactivity (low-avidity) continues to occur with diluted serum (high-titer). Testing each dilution with at least two cells has an advantage: the number of copies of antigens in the Knops system varies from person to person. If only one test cell is used, by unfortunate chance, the test cell may have a low number of copies, and dilutions of the plasma may be non-reactive. The immunohematologist concludes the antibody does not have HTLA reactivity and is off-track to identification. Interestingly, some antibodies that have historically been referred to as having HTLA reactivity don't have a high titer. When possible, antigen typing the patient's cells is included when investigating antibodies thought to be in the blood group systems listed above.

The Chido/Rodgers blood group system has six high-incidence antigens. The antigens reside on the fourth component of complement (C4) and are plasma antigens that are adsorbed onto the red blood cells. Because the antigens are present in plasma, plasma from a person who is Ch/Rg positive can be used to neutralize the antibody in the plasma of a patient with a Ch/Rg antibody.
The antigen in the plasma combines with the antibody so the antibody is no longer available to react with antigens on the red blood cells when the red blood cells are added to the test system (referred to as antibody neutralization). Neutralization studies are often used as an antibody identification technique when a patient is suspected to have an antibody with HTLA reactivity. Additionally, the use of a patient's neutralized plasma can be used to rule out antibodies to common antigens. This test method is limited to tube testing, where two drops of pooled donor plasma and two drops of patient plasma are mixed in a tube. A tube is set up for each cell to be tested, along with a set of control tubes that have 6% albumin added instead of pooled plasma. The tubes are incubated at room temperature to allow neutralization, test red blood cells are added, the tubes are incubated for 30-60 minutes at 37C, and converted to an indirect antiglobulin test. The control tubes remain reactive due to the Ch/Rg antibody, and the neutralized tubes no longer react unless an alloantibody is also present. If the control tubes are non-reactive, the test is not valid, and no conclusion can be made with the neutralized plasma.

For antibodies that do not neutralize with pooled plasma and therefore are not Ch/Rg antibodies, another test method can be used to categorize the antibody. A solution of 0.2M DTT is used to chemically modify test cells. Antibodies with HTLA reactivity that no longer react

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when test cells have been treated with DTT are suspected to be in the Knops blood group system. There are many antigens in other blood group systems that can be denatured by 0.2M DTT, and whenever possible, antigen typing of the patient's cells for Knops system antigens is performed.

Often, laboratories who use 0.2M DTT-treated cells to categorize antibodies into the Knops system will also type their patient's cells for two other high-incidence antigens, Lu^b and Yt^a. These two high-incidence antigens are also denatured by DTT, may demonstrate HTLA reactivity, but unlike other antibodies with HTLA reactivity, may cause decreased cell survival. Kell system antigens are also denatured by DTT, so use of DTT-treated cells to rule out antibodies to common antigens is acceptable except for excluding anti-K. Since finding blood lacking K is easy (91% of donors lack K), 0.2M DTT is a useful tool, and the patient may be provided K- units.

The Knops system has four high-incidence antigens: Kn^a, McC^a, Sl^a, and Yk^a. These antigens reside on CR1. CR1 on the red blood cells is responsible for binding immune complexes and transporting them to the liver and spleen where they are removed from the circulation. Within the system, there is an ethnic difference in frequency of the Sl^a antigen. In the white population, 2% are Sl(a-). In the black population, 50% are Sl(a-).

The JMH antigen is also denatured by DTT. Unlike Knops system antigens, JMH is denatured by enzymes (Ch/Rg are also denatured by enzymes). Another finding with anti-JMH is that the antibody often appears in elderly patients whose own JMH antigen is weakened. They may have a positive DAT, and in these patients the anti-JMH is an autoantibody. The location of the JMH antigen is known to be on the marker CD108, but the function of the JMH antigen (CD108) is not known.

When antibodies are not neutralized by pooled plasma and continue to react with 0.2M DTT-treated and enzyme-treated cells, the antibodies are likely directed towards antigens in the COST collection. The location of the two antigens in the COST collection is unknown. People who are Yk(a-) are often Cs(a-), yet Cs^a is not part of the Knops blood group system, since it is known that Cs^a does not reside on CR1.

To summarize, Ch/Rg antibodies are neutralized by pooled plasma; Knops and JMH antigens are denatured by 0.2M DTT. JMH can be distinguished from Knops by enzyme treatment of cells; and COST antigens are not neutralized by pooled plasma or denatured by 0.2M DTT and enzymes.

Although antibodies to antigens in the blood group systems discussed in this CE activity are not clinically significant, the resolution is time-consuming, but necessary, to ensure there are no clinically significant antibodies to common antigens in the patient's sample.

References: Reid ME, Lomas-Francis C. The blood group antigen factsbook,. San Diego: Academic Press, 2004

Q & A below - Answers can be found at the end of the newsletter.

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Questions:

1. When performing antibody identification, an antibody is suspected of having HTLA reactivity, describe the expected serologic findings.

2. During the same investigation, if the patient's sample was neutralized with pooled plasma, what is the likely specificity of the antibody?

3. What antibodies with HTLA reactivity would not react with enzyme treated cells?

4. If reactivity was observed with 50% of cells tested, but was no longer observed after the cells were treated with 0.2M DTT, what antibody would you suspect?

5. A person who is deficient in C4 would lack what blood group antigens?

JOB POSTING – Reference Lab Technologist 1

American Red Cross, Western Lake Erie Region – Toledo, Ohio. Full time position in Special Services Lab. Pay rate is commensurate with experience.

QUALIFICATIONS:

- Bachelor's degree in Science or Medical Technology with MT (ASCP) certification.
- Experience in immunohematology preferred.
- Minimum one year of full-time blood bank experience.
- Must be highly detailed and accurate.
- Must be able to function independently once trained.
- Must be able to use a personal computer and applicable software.
- Excellent problem-solving skills required.
- Good written and verbal communication skills.

For more information on the description of this job, please see www.mabb.org/jobs.htm. Additional information can be found at www.givebloodtoday.org. To apply, contact wlehr@usa.redcross.org.

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SEND ARTICLES TO EDITORS:

The deadline for next issue is October 1st!

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Answers to questions in the article: HTLA Antibodies

This Continuing Education activity is worth 0.5 CH.

Antibodies with High-Titer, Low-Avidity (HTLA) Reactivity

Objectives:

- State the serologic characteristics of antibodies with high-titer, low-avidity reactivity
- State the antibodies that can be neutralized with pooled plasma.
- Differentiate antibody specificities by using enzyme-treated and DTT-treated test cells.
- Identify structures where selected blood group system antigens reside
- Associate ethnic backgrounds with particular antigen-negative phenotypes

Questions:

1. When performing antibody identification, an antibody is suspected of having HTLA reactivity, describe the expected serologic findings.

   1+ or less reactivity with most panel cells, reactivity observed upon diluting the plasma

2. During the same investigation, if the patient's sample was neutralized with pooled plasma, what is the likely specificity of the antibody?

   Anti-Ch or anti-Rg

3. What antibodies with HTLA reactivity would not react with enzyme treated cells?

   Anti-Ch, -Rg, and -JMH

4. If reactivity was observed with 60% of cells tested, but was no longer observed after the cells were treated with 0.2M DTT, what antibody would you suspect?

   Anti-Sl^a

5. A person who is deficient in C4 would lack what blood group antigens?

   Chido/Rodgers